

Notice of Allowability

Application No.

09/680,045

Examiner

Patrick J Santos

Applicant(s)

AVNER ET AL.

Art Unit

2161

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to June 24, 2004.
2. ☒ The allowed claim(s) is/are 2-4, 6, 9-13, 15, 20-21, 25-29, and 32-33.
3. ☒ The drawings filed on 1/11/2000 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.


Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 5/27/2004.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


SAFET METJAHIC
SUPERVISOR EXAMINER
TECHNOLOGY CENTER 2100

DETAILED ACTION

Examiner's Amendment

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.
2. Authorization for this examiner's amendment was given in a telephone interview with Rick Nydegger, Applicant's representative on November 23, 2004.
3. The amended claims are as follows:
 2. (Previously Presented) The method in accordance with Claim 32, wherein the notification table is stored in the database.
 3. (Previously Presented) The method in accordance with Claim 32, wherein the act of dispatching a notification of the implementation to the one or more client applications requiring such notification comprises an act of transmitting a message to a machine that hosts the client application, the machine that host the client application being different than the machine that hosts the database management system.
 4. (Previously Presented) The method in accordance with Claim 32, wherein the act of dispatching a notification of the implementation to the one or more client applications requiring such notification comprises an act of passing the notification through a function call to the identified client application, the client application hosted by the same machine

as at least the portion of the database management system responsible for performing the act of dispatching the notification.

6. (Previously Presented) The method in accordance with Claim 32, wherein the act of implementing a high-level document command in the database and the act of altering a persistently stored notification table to reflect the implementation occur in the same transaction of a database engine.

9. (Previously Presented) The method in accordance with Claim 32, wherein the act of implementing the high-level document command in the database comprises an act of moving the document.

10. (Previously Presented) The method in accordance with Claim 32, wherein the act of implementing the high-level document command in the database comprises an act of deleting the document.

11. (Previously Presented) The method in accordance with Claim 32, wherein the act of implementing the high-level document command in the database comprises an act of copying the document.

12. (Previously Presented) The method in accordance with Claim 32, wherein the act of implementing the high-level document command in the database comprises an act of adding the document.

13. (Previously Presented) The method in accordance with Claim 32, wherein the act of implementing the high-level document command in the database comprises an act of updating the document.

15. (Previously Presented) The method in accordance with Claim 32, wherein the received acknowledgement indicates that the client application has implemented processes in response to the notification.

16. (Canceled)

17. (Canceled)

18. (Canceled)

20. (Currently Amended) The computer program product in accordance with Claim 33, wherein the computer-executable instructions for performing the act of causing a notification of the implementation to be dispatched to the one or more identified client applications comprise computer-executable instructions for performing an act of causing a message to be transmitted to a machine that hosts the client application, the machine that hosts the client application being different than the machine that hosts the database management system.

21. (Previously Presented) The computer program product in accordance with Claim 33, wherein the computer-executable instructions for performing the act of causing a notification of the implementation to be dispatched to the one or more identified client applications comprises computer-executable instructions for performing an act of causing the notification to be passed through a function call to the identified client application, the client application hosted by the same machine; as at least the portion of the database management system responsible for performing the act of dispatching the notification.

25. (Previously Presented) The computer program product in accordance with Claim 33, wherein the computer-executable instructions for performing the act of causing the

high-level document command to be implemented in the database comprise computer-executable instructions for performing an act of moving the document.

26. (Currently Amended) The computer program product in accordance with Claim 33, wherein the computer-executable instructions for performing the act of causing the high-level document command to be implemented in the database ~~comprises~~ comprise computer-executable instructions for performing an act of deleting the document.

27. (Currently Amended) The computer program product in accordance with Claim 33, wherein the computer-executable instructions for performing the act of causing the high-level document command to be implemented in the database comprise computer-executable instructions for performing an act of copying the document,

28. (Currently Amended) The computer program product in accordance with Claim 33, wherein the computer-executable instructions for performing the act of causing the high-level document command to be implemented in the database comprises comprise computer-executable instructions for performing an act of adding the document.

29. (Previously Presented) The computer program product in accordance with Claim 33, wherein the computer-executable instructions for performing the act of causing the high-level document command to be implemented in the database comprise computer-executable instructions for performing an act of updating the document.

32. (Currently Amended) In a computing system comprised of an operating system and client applications, and that includes,

~~on one side of~~ external to the operating system, i) a database application for generating high-level document commands that relate to operations to be

performed on a document such as a folder, a file, a message or other such entities that are identified at the level of client applications that use the system, and ii) a database engine for receiving the high-level commands from the database application and then implementing them by executing object commands passed to an operating system, and

~~on the other side of~~ internal to the operating system, a separate notification database containing one or more tables each comprised of objects that define various properties of one or more documents, and wherein the objects contained in the database tables are updated in response to the object commands received from the operating system,

a method for asynchronously notifying client applications of the, implementation of particular high-level document commands so that such notification survives even failures of either the database engine or client applications, and wherein the method is comprised of performing the following acts:

the database application issuing one or more high-level document commands which are to be implemented;

either i) before implementing an issued high-level document command, or
ii) at the same time that any other table of the database is updated, the database engine altering a persistently stored notification table by creating a notification entry to reflect the implementation of the issued high-level document command, with the result that the client applications do not affect the implementation of the high-level document command since the implementation takes place prior to

notification of the client applications, even in the event of failure of either database or the client application, because either,

for case i), no tables in the database are updated until such failure is restored and notification of implementation is verified by at least one of the client applications to the database engine of the operating system, or

for case ii), all tables in the database are updated in the same transaction used to create the notification entry when updating the persistently stored notification table of the database engine of the operating system; and

dispatching from the operating system a notification of the implementation of the issued high-level document command to one or more client applications requiring such notification;

receiving acknowledgement from at least one of the one or more client applications that the notification has been received; and

in response to receiving acknowledgement, the database engine altering the notification table to reflect that no client applications any longer need to be notified of the implementation of the high-level document command.

33. (Currently Amended) In a computing system comprised of an operating system and client applications, and that includes,

~~on one side of~~ external to the operating system, i) a database application for generating high-level document commands that relate to operations to be performed on a document such as a folder, a file, a message or other such entities

that are identified at the level of client applications that use the system, and ii) a database engine for receiving the high-level commands from the database application and then implementing them by executing object commands passed to an operating system, and

~~on the other side of~~ internal to the operating system, a separate notification database containing one or more tables each comprised of objects that define various properties of one or more documents, and wherein the objects contained in the database tables are updated in response to the object commands received from the operating system,

a computer program product comprised of computer-executable instructions for implementing a method for asynchronously notifying client applications of the implementation of particular high-level document commands so that such notification survives even failures of either the database engine or client applications, and wherein the method is comprised of performing the following acts:

the database application issuing one or more high-level document commands which are to be implemented;

either i) before implementing an issued high-level document command, or ii) at the same time that any other table of the database is updated, the database engine altering a persistently stored notification table by creating a notification entry to reflect the implementation of the issued high-level document command, with the result that the client applications do not affect the implementation of the high-level document command since the implementation takes place prior to

notification of the client applications, even in the event of failure of either database or the client application, because either,

for case i), no tables in the database are updated until such failure is restored and notification of implementation is verified by at least one of the client applications to the database engine of the operating system, or

for case ii), all tables in the database are updated in the same transaction used to create the notification entry when updating the persistently stored notification table of the database engine of the operating system; and

dispatching from the operating system a notification of the implementation of the issued high-level document command to one or more client applications requiring such notification;

receiving acknowledgement from at least one of the one or more client applications that the notification has been received; and

in response to receiving acknowledgement, the database engine altering the notification table to reflect that no client applications any longer need to be notified of the implementation of the high-level document command.

4. Examiner's amended changes as discussed with Applicant's representative are as follows:

- Cancel claims 16-18.
- Claim 32, line 3:
 - o delete the phrase, "on one side of", at the beginning of the line

- insert the phrase, “external to”, at the beginning of the line
 - resulting in line 3 reading in full, “external to the operating system, i) a database application for generating high-...”
- Claim 32, line 9:
 - delete the phrase, “on the other side of”, at the beginning of the line
 - insert the phrase, “internal to”, at the beginning of the line
 - insert the phrase, “separate notification”, between the words “a” and “containing”
 - resulting in line 9 reading in full, “internal to the operating system, a separate notification database containing one or more...”
- Claim 33, line 3:
 - delete the phrase, “on one side of”, at the beginning of the line
 - insert the phrase, “external to”, at the beginning of the line
 - resulting in line 3 reading in full, “external to the operating system, i) a database application for generating high-...”
- Claim 33, line 9:
 - delete the phrase, “on the other side of”, at the beginning of the line
 - insert the phrase, “internal to”, at the beginning of the line
 - insert the phrase, “separate notification”, between the words “a” and “containing”
 - resulting in line 9 reading in full, “internal to the operating system, a separate notification database containing one or more...”

The above changes in the Examiner’s amendment do not further limit the claims, but rather are meant to clarify the meaning of the claims.

5. Additionally, after discussion with Applicant's representative, Examiner detected six typographical errors, and further amends claims with corrections as follows:

- Claim 20, line 4:
 - o add the letter "s" to the word "instruction"
 - o resulting in line 4 reading in full, "applications comprise computer-executable instructions for performing an act of causing a..."
- Claim 26, line 3:
 - o delete the word, "comprises"
 - o resulting in line 3 reading in full, "level document command to be implemented in the database comprise computer-..."
- Claim 27, line 3:
 - o delete the word, "comprises"
 - o resulting in line 3 reading in full, "level document command to be implemented in the database comprise computer-..."
- Claim 28, line 3:
 - o delete the word, "comprises"
 - o resulting in line 3 reading in full, "level document command to be implemented in the database comprise computer-..."
- Claim 32, line 30:
 - o delete the extra "d" on the word, "create"

- resulting in line 30 reading in full, “used to create the notification entry when updating the persistently stored...”
- Claim 33, line 31:
 - delete the extra “d” on the word, “create”
 - resulting in line 31 reading in full, “used to create the notification entry when updating the persistently stored...”

Regarding amendments in Claims 26, 27, and 28, Examiner notes that similar claims had the word, “comprises” struck through. Examiner believes that Applicant intended to strike through the word, “comprises” (and replaced with the word “comprise”) in Claims 26, 27, and 28 as well, but erroneously left the word unmarked.

Reasons for Allowance

6. The following is an examiner’s statement of reasons for allowance:

Applicant claims a means to implement file and mail system operations in terms of database operations such that the operations survive system failure.

File operations in term of database operations, as claimed by Applicant, are not novel. For example, U.S. Patent No. 5,504,897 to Gans discloses an embodiment of a mail system implemented in a relational database. In fact, as far back as 1988, Xerox (TM) PARC had developed a mail system implemented in a relational database (Putz, Stephen, “Babar: An Electronic Mail Database”, Technical Report SSL-88-1, Xerox (TM) Palo Alto Research Center, 1988).

Applicant seeks to distinguish from prior art by additionally claiming that the database operations survive system failure. However, Examiner notes that many relational databases typically employ a transaction monitor to guarantee that the database operations survive system failure. Specifically, transaction monitors guarantee the so-called ACID properties: Atomicity, Consistency, Isolation, and Durability (Gray and Reuter, "Transaction Processing: Concepts and Techniques", Morgan Kaufmann Publishers, Inc., 1993), which guarantee survival of operations in the event of system failure. Therefore, a mail system implemented in a database that includes a transaction monitor, inherently protects mail system operations protected from system failure.

Applicant further seeks to distinguish from prior art by additionally claiming mail system notifications as included as operations protected by a transaction monitor. However, separate transaction monitors that apply to arbitrary objects exist as well. An example is disclosed by U.S. Patent No. 5,890,161, to Helland et al. Combined with the well known concept of Loosely Coupled Events (LCE) (____, "COM+ Technical Series: Loosely Coupled Events", Microsoft Corporation (TM), <<http://msdn.microsoft.com/library/en-us/dncomser/html/compluscouple.asp?frame=true>>, September 1999), the notifications could potentially be transacted as well.

However, Applicant's claims, as amended, explicitly place application command storage as external to the operating system and the storage for the notification's transacted states as internal to the operating system. Furthermore, Applicant's claims are extremely detailed as to how these separate storages interact. While some transaction monitors cross the system/application boundary, Examiner finds that the particular method of interaction as claimed by Applicant's renders Applicant's claims allowable.

7. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick J.D. Santos whose telephone number is 571-272-4028. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic can be reached on 571-272-4023. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patrick J.D. Santos
November 28, 2004


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